IMPAQED PRODUCTS

TPMS 10.02.011

USER MANUAL

Impaqed Products BV

www.impaqedproducts.eu

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I. IMPAQED PRODUCTS TPMS 10.02.011 Full-Time Direct TPMS

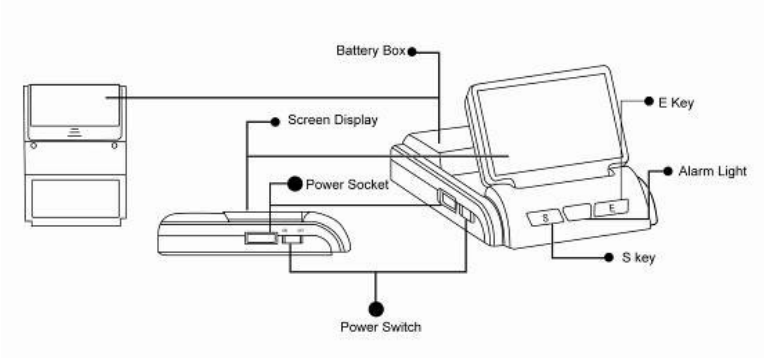
TPMS 10.02.011 is a full-time direct tire pressure monitoring system which includes one Monitor and four screw-on Transmitters. The system can also support monitoring of the spare tire and an additional two-wheel trailer (totally monitoring 6 or 7 wheels). The Transmitters can be screwed onto the tire valve to replace the original valve cap and then sense the pressure inside the tire all the time, and transmit the pressure information data to the Monitor by RF technology.

The Monitor can receive and deal with the data, then display the pressure on the screen. The Monitor can issue different alarms if the tire pressure is under an improper state based on the programmed standard pressure.

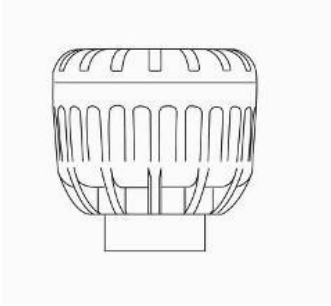
IMPAQED PRODUCTS TPMS 10.02.011 can sense and display the tire pressure and temperature all the time and can issue an alarm when the tire pressure or temperature is at an improper level, so as to notify the driver to treat the problem in advance. Through TPMS 10.02.011, the driver can keep the tire at a proper pressure so as to avoid excess gasoline consumption and keep the vehicle under an easily controlled state.

II. Parts of IMPAQED PRODUCTS TPMS 10.02.011

Monitor



Transmitter



Parts of TPMS 10.02.011

1 Monitor

4 Transmitters

4 Security locks

1 Lighter plug

4 Counterweights (each 10g)

2 Wrenches

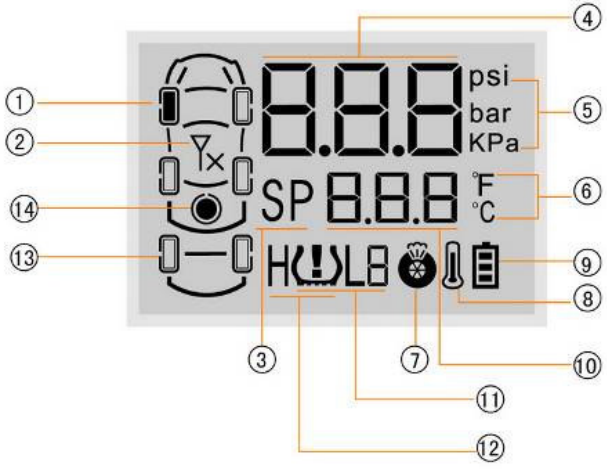
1 User Manual

1 Warranty Card

Optional Parts

Transmitters for spare tire and trailer wheel

Screen Display



No.	Meaning	No.	Meaning
(1) Tire position Icon	Current tire information	(8) High Temperature Alarm Icon	High temperature alarm
(2) Transmitter Trouble Alarm Icon	Transmitter trouble	(9) Battery Power Icon	Battery power indication icon
(3) Standard Pressure Icon	Standard pressure value icon	(10) Temperature	Temperature value
(4) Pressure	Pressure value	(11) Low Pressure alarm Icon	Indicate low pressure alarm
(5) Pressure Unit	Pressure unit, bar/Kpa/ psi	(12) High Pressure Alarm Icon	High pressure alarm
(6) Temperature Unit	Temperature unit, ℃/℉	(13) Trailer	Tire position of trailer
(7) Fast Leak Alarm Icon	Fast leak alarm	(14) Spare Tire	Spare tire position

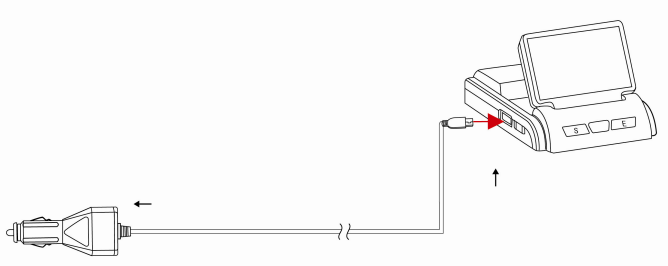
III. Installation of TPMS 10.02.011

Installation of Monitor

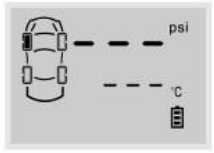
1. Take out the Monitor from the package.

2. Choose a suitable location on the dashboard to place the monitor.

3. Connect lighter plug with vehicle power supply as shown in below figure.



4. Turn on the monitor by switching to “ON”. Before the Transmitters are installed, the screen displays as shown below:



Note: 1. If you don't want to use the lighter plug, the battery is an option for powering the Monitor. The steps are as follows:

1) Take off the cover of the battery box on the back of the Monitor.
2) Put two AA batteries into the battery box.
3) Cover the battery box.
4) Turn on the monitor by switching to “ON”.

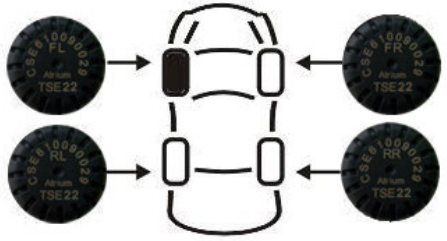
2. The lighter plug is a special plug with a transformer inside.
3. For some vehicles, the lighter plug will be powered off when the engine powers off. If this happens, or the user accidentally pulls out the lighter plug, while batteries are already put into the battery box, and the power of the batteries is enough to operate the monitor, the Monitor will switch to battery power mode automatically.
4. When the monitor is turned off, it can not receive, deal with and display any alarm information.
5. If the vehicle won’t be in use for a long time while the lighter plug is

still connected, the vehicle power maybe exhausted and then cannot be started later. Thus, we strongly suggest that the user pull out the lighter plug if the vehicle won’t’ be in use for a long time.

Installation of Transmitter

Transmitter installation position

The Transmitters must be installed onto corresponding tire position as marked on the top. When install the system to a 4-wheel car, the meaning of the marks on Transmitter is as follows:



Note: FL: stands for front left tire FR: stands for front right tire

RL: stands for rear left tire RR: stands for rear right tire

Transmitter Installation steps:

1. Please ensure monitor has been powered on.

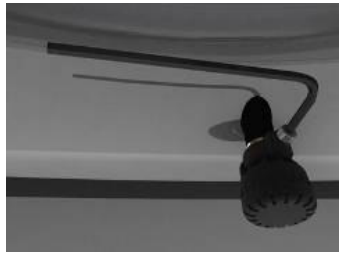
2. Remove the current tire valve cap.

3. Put the security lock on the valve, ensure the side with screw is at the direction which is easy for tightening.

4. Install the Transmitter onto the valve, please ensure install it according to the position mark on the top.

5. Connect the meshing parts of the Lock and the Transmitter to make them an integrated part.

6. Tighten the lock using the wrench.



7. After the Transmitter is installed, it will start working and send signals to the monitor. As shown below, the front left tire was installed with a Transmitter and the monitor has received the signals from it.

The other 3 Transmitters can be installed in the same way stated above.

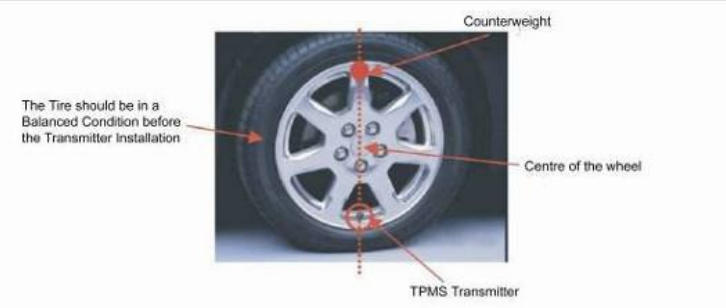
8. Installation of Counterweights

In order to ensure that each tire remains balanced after installation of the Transmitter and security lock, it is recommended that the user take their car to a service center for re-balancing. Or the user can install the provided counterweights inside the package to keep tires balanced. To

install the counterweight:

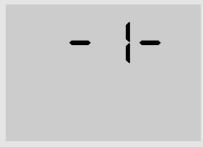
a. Clean the location where the counterweight will be installed. This location should be directly across the position of the Transmitter on the wheel.

b. Take out the counterweight from the package and remove the liner material on its back. Then place it onto the cleaned location.


Counterweight
The Tire should be in a Balanced Condition before the Transmitter Installation
Centre of the wheel
TPMS Transmitter

IV. Access to Programming Index Interface

Under the normal operation mode, press the E key for 3 seconds to access monitor programming index interface. The screen will display “-1-” which stands for index interface 1.



Pressure S key to switch between the interfaces from 1 to 6. Press and hold S key until monitor exits the programming index interface and returns to the normal operation mode.

Note: If there is no operation for a certain time, the system will exit the programming interface and return to the normal operating mode automatically.

Below are the function descriptions of each index interface.

Index	Function
1	Transmitter ID inquiry and programming
2	Standard Pressure Inquiry and Programming
3	Pressure and Temperature Unit Inquiry and Programming
4	System Time Inquiry and Programming
5	Alarm Record Inquiry
6	Transmitter ID Deletion

A. Standard Pressure Inquiry and Programming

Standard Pressure Inquiry

The pressure alarm that issued by monitor is based on the programmed standard pressure.

The system will issue the high pressure alarm when the tire pressure is 25% higher than the standard pressure.

The system will issue the low pressure level 1 alarm when the tire pressure is 12.5% lower than the standard pressure.

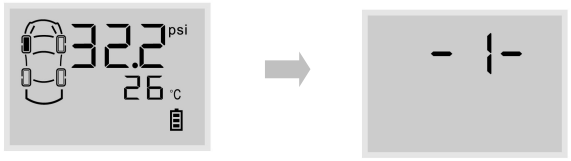
The system will issue the low pressure level 2 alarm when the tire pressure is 25% lower than the standard pressure.

The system will issue the low pressure level 3 alarm when the tire pressure is 50% lower than the standard pressure.

It is necessary to set a proper standard pressure to ensure the system

works normally. The default standard pressure set in factory is 32 psi. User can adjust the standard pressure according to actual needs.

Under the normal interface, press E key for 3 seconds to enter the monitor programming mode, and it shows index interface 1 first.



Press S key to switch to index interface 2, then press E key to enter the standard pressure inquiry interface. Firstly it displays the standard pressure for front left tire. The default standard pressure is 32 psi.

Press S key to check the other tires' standard pressure setting in turn. At any tire position, press and hold S key will return to interface 2.

Standard Pressure Programming

For example, set the standard pressure of front left tire to 35psi on the monitor, operations are as below:

Under the mode of inquiring standard pressure, press E key for 3 seconds to enter the programming mode, and the first digit starts to flash.

Press S key can adjust the number. When no need to adjust, press E key to confirm and switch to next digit which flashes. Then press S key to adjust it to "5".

After set the standard pressure, press E key for about 3 seconds to save with beep buzzes twice and screen flashes twice, then the screen will return to the standard pressure inquiry mode.

During process of setting the standard pressure, press and hold S key will return to index interface 2 and will give up the setting, the adjusted value will not be saved.

Note:

The system limits the maximum standard pressure value which is allowed to be set in monitor. This is to ensure system works normally. If the desired value exceeds this value, the system will not save the setting and remains unchanged.

As shown in left figure, the maximum standard pressure for all tires is as below:

9.9 Bar 999 Kpa 144 Psi

B. Pressure and Temperature Unit Inquiry and Programming

The system provides 3 kinds of pressure units Psi, bar and Kpa and 2 kinds of temperature units ℃ and ℉. User can choose the desired unit as follows:

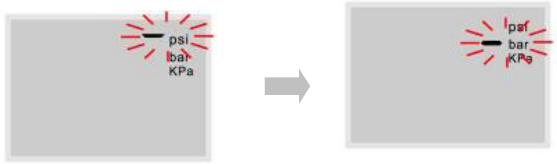
Under normal mode, press E key for 3 seconds to enter the monitor programming model, the screen displays index interface 1. Press S key to switch to interface 3.

Then press E key to enter pressure and temperature unit programming mode. First the pressure units will be displayed. As shown below, the "-" indicates that current pressure unit is "psi". Press S key can switch to

temperature unit interface. As shown below, the "-" indicates that current temperature unit is "℃".

Pressure Unit Programming

Under the pressure unit inquiry mode, press E key for 3 seconds to enter programming mode. The current pressure unit flashes. As shown in the figure. Press S key to select the desired pressure unit.

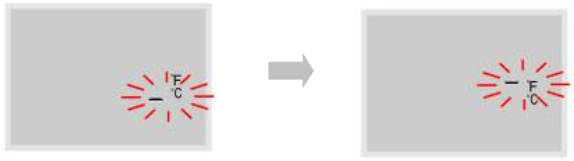


After selection, press E key for 3 seconds to save with beep buzzes twice and screen flashes twice, and then system returns to pressure unit inquiry mode.

Temperature Unit Programming

Under temperature unit inquiry mode, press E key for 3 seconds to enter the programming mode. The current unit will flash. Press S key to select

desired temperature unit.



After selection, press E key for 3 seconds to save with beep buzzes twice and screen flashes twice, and then system returns to temperature unit inquiry mode.

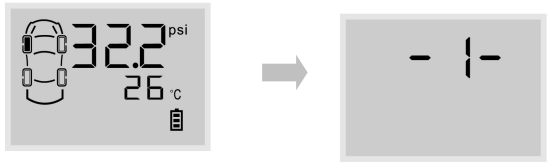
C. System Time Inquiry and Programming

Check the system time when use the product for first time. The monitor provides 24 hours time system inquiry and programming. Even though the monitor is powered off, the internal clock is still in operation. The alarm information and alarm time will be saved into the monitor when alarm was issued.

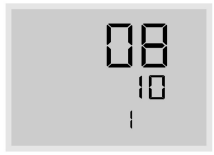
System time inquiry

You can check the time "year/month/date/hour/minutre/second" on the monitor.

Under normal mode, press E key for 3 seconds to enter the monitor programming mode, the screen displays index interface 1.



Press S key to adjust the index interface to interface 4, then press E key to enter the time inquiry and programming mode. It first displays year and month.



As shown in the figure, "08" means year 2008, "10" means October. The "1" at bottom means this is first interface of system time inquiry.

Press S key to switch to second interface. "20" means date 20th, "10" means 10am. The "2" at bottom means this is second interface of system time inquiry.

Press S key to switch to third interface. "30" means minute, "50" means the second. The "3" at bottom means this is third interface of system time inquiry.

The system time showed in above figures is 10:30:50, Oct. 20th, 2008.

Under inquiry mode, press and hold S key can return to index interface 4.

System time programming

Under any inquiry interface, press E key for 3 seconds to enter the programming mode. For example, change the time to March, 2009. When it displays year and month, press S key for 3 seconds to enter programming mode. The "0" will start flashing, then press E key to confrim and move to next digit, press S key again to adjust the number to "9".

Then press E key to confirm and it switches to next digit, the digit which indicates month will flash. Press S key to adjust the number, then press E key to confirm and switch to next digit. Also press S key to adjust, as shown in below figures:

(Note: after finish above setting, continue to press E key can proceed with setting of "date" and "hour".)

After finsh the settings, press E key for about 3 seconds to save with beep buzzes twice and screen flashes twice, then return to the time inquiry mode.

During programming process, press and hold S key can return to the index interface 4 and give up the change.

D. Alarm Record Inquiry

The monitor will issue an alarm when the tire is under the improper status and will record the alarm. User can check alarm records in this mode. The system can record the latest 10 alarms. When there were already 10 alarm records saved in monitor, once there is a new alarm happens, the earliest alarm will be deleted automatically.

Under normal mode, press E key for 3 seconds to enter the monitor programming mode, the screen displays index interface 1. Press S key to switch to interface 5.

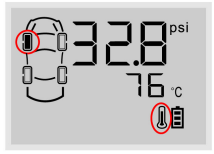
Then press E key to enter the inquiry mode of alarm records. If there is no record, it will display "---".

Alarm Record Number

If there is alarm record in the monitor, then it will display "1" showing the first record. Press S key to switch to next record number, as shown below.

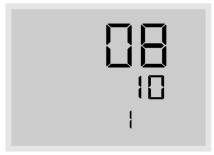
Contents of Alarm Records

Under alarm record number mode, press E to enter and check alarm details. As shown in left figure, it is the first alarm record which is also the latest alarm record.



Firstly it displays the detailed alarm information, as shown in left figure, alarm happened to front

left tire, the pressure is 32.8 psi, the temperature is 76□, the alarm is high temperature.



Press S key to check the detail alarm time. As shown in left figure, year (08) and month (10) when alarm happened are displayed.

Press S key to check date (20th) and hour (10 am).

Continue to press S key to check minute as shown left.

Under the inquiry mode, press E key to return to the alarm record number interface.

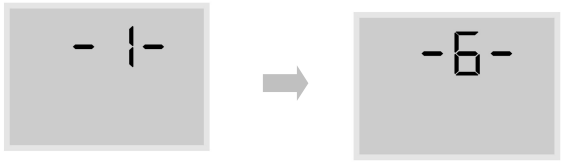
Under the inquiry mode, press S key for about 3 seconds to return to the index interface 5.

E. Deletion of Transmitter ID

If you don't want to have a tire monitored by the TPMS system, just delete the Transmitter ID number of that tire location from the monitor.

Firstly delete the ID of the lost Transmitter from the monitor. Under the

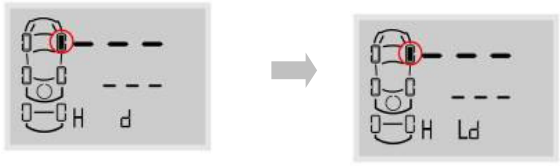
normal mode, press E key for about 3 seconds to enter the monitor programming mode, the screen displays index interface 1. Press S key to switch to index interface 6, then press E key to enter the Transmitter ID deletion mode.



Then the first six ID numbers of front left Transmitter will be shown. The letter “d” in the figure is the initial letter of “delete” which stands for Transmitter ID deletion interface to differentiate from the ID inquiry and programming interface. Press S key to switch to other different tire positions.

At any tire position, press E key for about 3 seconds will delete the ID number with beep buzzes twice and screen flashes twice, and then monitor will return to inquiry interface.

For example as shown below, under ID inquiry mode, “---” shows at front right tire position. This means all 12 digits of ID were deleted.



The tire position with ID number deleted cannot be monitored under the normal mode. The screen will not display pressure and temperature information of that tire position.

Then press and hold S key will return to index interface 6.

V. System Functions

Power Switch automatically

The Monitor can be powered by vehicle power through the lighter plug or the battery. Using vehicle power is strongly recommended.

If the lighter plug is connected with the Monitor, and the batteries are also inside the Monitor battery box, the Monitor will still draw power from vehicle power. For some reason, if the vehicle power is not available, the monitor will automatically switch to battery power mode.

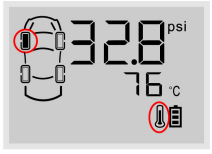
Power-saving mode

When powered by batteries and the car is static, the Monitor (no vibration to it for about 10 minutes) will switch to power-saving mode with LCD screen shut down.

Screen display

After correctly installed and used for a while, when turn off and turn on again the monitor, the screen will display the last piece of information received before monitor is turned off, as shown in left figure (for front left tire, the pressure is 32.2 psi and the temperature is 26℃).

High Temperature Alarm



Function: The system will issue a High Temperature Alarm when temperature inside the tire exceeds 75□.

Alarm mode: The alarm light, LCD background light, high temperature warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or it will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light goes off only when the tire pressure returns to the normal level.

High Pressure Alarm

Function: The system will issue a high pressure alarm when the tire pressure is 25% higher than the standard.

Alarm mode: The alarm light, LCD background light, high pressure warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or it will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light goes off only when the tire pressure returns to the normal level.

Low Pressure Level 1 Alarm

Function: The system will issue a low pressure level 1 alarm when the tire pressure is 12.5% lower than the standard.

Alarm mode: The alarm light, LCD background light, low pressure level 1 warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or it will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light will automatically turn off when the tire pressure returns to the normal level.

Low Pressure Level 2 Alarm

Function: The system will issue a low pressure level 2 alarm when the tire pressure is 25% lower than the standard.

Alarm mode: The alarm light, LCD background light, low pressure level 2 warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or it will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light will automatically turn off only when the tire pressure returns to the normal level.

Low Pressure Level 3 Alarm

Function: The system will issue a low pressure level 3 alarm when the tire pressure is 50% lower than the standard.

Alarm mode: The alarm light, LCD background light, low pressure level 3 warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or it will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light will automatically turn off when the tire pressure returns to the normal level.

Fast Leak Alarm

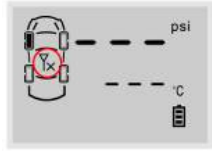
Function: The system will issue a fast leak alarm when the tire pressure changes more than 0.2 bar within 12 seconds.

Alarm Mode: The alarm light, LCD background light, the fast leak icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm. The system reverts to normal mode.

Note: Once leakage happens, please slow down immediately to check the tire.

Transmitter Trouble Alarm



Function: If one Transmitter fails to work, or the Monitor can't receive the data because of the RF interference for a certain time, the system will issue a Transmitter trouble alarm.

Alarm Mode: The red alarm light, LCD background light, the Transmitter trouble alarm icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or it will automatically stop 30 seconds later. The red alarm light will automatically turn off when the monitor can receive the signals from this tire position again.

Warning of Low Battery Power

Function: The system will issue a warning alarm when the battery power is too low to afford the monitor to work.

Alarm mode: The beep buzzes twice shortly and stops, the battery icon flashes continually.

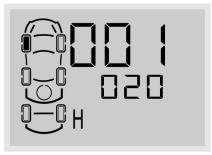
Treatment: Replace the batteries or connect the monitor with the lighter plug immediately to use the vehicle power supply.

VI. Inquiry and programming of Transmitter ID

Inquiry of Transmitter ID

Under normal mode, press E key for 3 seconds to enter programming mode. The screen displays "-1-" which stands for index interface 1.

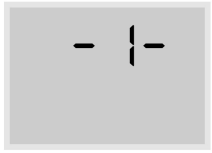
Under index interface 1, press E key to enter the Transmitter ID programming and inquiry mode.



Firstly it will display first six digits of Transmitter ID of front left tire, we also call these 6 digits as "high part" of the ID number. The "H" stands for the first six digits of the ID.

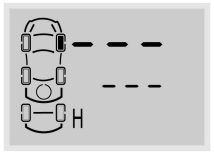
Press S key to switch screen interface. At this time, the screen displays the last six digits of Transmitter ID, we also call it as "low part" of the ID number. The "L" stands for the last six digits of the ID.

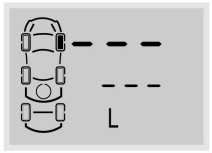
Continue to press S key can check through each Transmitter's ID number.



At any tire position, press and hold S key can return to index interface 1.

For example, as shown in below 2 figures, there is no Transmitter ID programmed into the front right tire position which is in solid black.

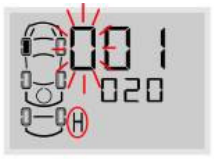




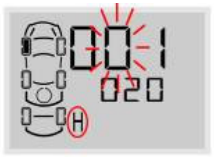
Programming of Transmitter ID

This function is for adding a new Transmitter to the system or replacing a

lost or broken Transmitter. You will need to first program the new Transmitter's ID into the corresponding tire position on the monitor, and then install the Transmitter onto the tire valve correctly. Operations are as follows:

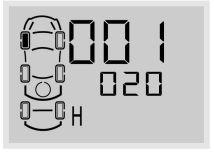


Under the ID inquiry mode, press E key for about 3 seconds to enter the ID programming mode. At this time, the first digit flashes. Press S key to adjust the value.



Press E key to confirm and switch to next position, then the second digit flashes. Also press S key to adjust value, and then press E key to confirm and switch to next position.

When finish programming of the first 6 digits (High Part), press E key to switch to last 6 digits (Low part) for programming, at this time, the first digit also flashes.

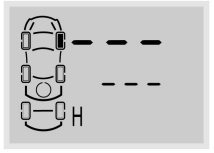


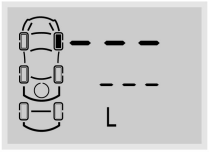
When finish programming of all 12 digits as above, press E key for 3 seconds to save with beep buzzes twice and screen flashes twice, and then return to ID inquiry mode.

During process of setting ID, press and hold S key can return to index interface 1, and no setting will be saved.

Note:

When finished programming of all 12 digits ID, but found desired setting of ID is not saved and screen displays as below 2 figures, please check as below for possible wrong operation:





1. Programming of non-valid ID. The complete ID number of each Transmitter has 12 digits, and is divided into 4 groups. For each group the digit should be in the range of 001 to 255. For example, input such as 000 or 256 cannot be set into monitor.

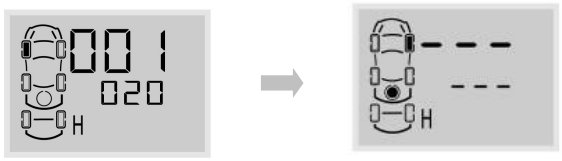
2. One same ID was set into two tire positions on monitor. For Transmitters inside each package, each of them has a different ID.

Should above situation occurs, the system will not save the programming, and user needs to reprogram again.

VII. How to monitor the spare tire

If you want to have the spare tire monitored as other wheels, you will need to first program a new Transmitter into the monitor and then install this Transmitter onto the tire. Operations are as below:

1. Under the Transmitter ID programming mode, press S key to switch to spare tire position, as shown below:



2. Input all 12 digits of the new Transmitter into the monitor.
3. Program the standard pressure for spare tire on monitor.
4. Install the Transmitter onto the tire.

Installation of a New Transmitter

After program Transmitters ID to the corresponding tire positions in the monitor, user can install the Transmitter to the corresponding tires. For installation, please refer to “Installation of Transmitter” on page 8.

When installed successfully, user should check the standard pressure and system time on the monitor. Please refer to “V. Standard Pressure Inquiry and Programming” on page 12 and “VII. System Time Inquiry and Programming” on page 17.

VIII. Specifications

Monitor

Operating Temperature:	-30□ ~ +70□
Modulation Type:	FSK
Mid-frequency:	433.9 MHz
Receiving Sensitivity:	-105 dbm
Input Voltage:	5V（Cigarette lighter plug）
	1.5V×2 (AA batteries)
Weight:	72±2 g

Transmitter

Operating Temperature:	-30□ ~ +85□
Pressure Range:	0~13 bar / 0~188 psi
Accuracy of Pressure Measurement:	± 0.15 bar / ± 2 psi
Modulation Type:	FSK
Mid-frequency:	433.9 Mhz
Transmitting Power:	-10 dbm
Weight:	8±1 g

IX. Special Annex

1. LCD operating temperature

For all of the LCD, the lowest limitation operating temperature is -30℃, the upper temperature limit for working mode is 70℃ , for storage the temperature limit is 85℃. This is determined by the character of the LCD. If the LCD works under lower temperature (for example, -30℃) for a long time, the LCD may be destroyed.

In order to use the LCD properly, we strongly recommend the user power off the display if the temperature inside the vehicle will be lower than -30 ℃ for a long time.

2. Checking and inflating the tire pressure regularly

In order to ensure that your tires remain at optimum pressure levels, it is strongly recommended that the user check and adjust the pressure of each tire once a month.

3. Replace with a new Transmitter

If one of the Transmitters is broken or lost, you should change a new Transmitter for the tire. The broken Transmitter will not influence the other Transmitters' operation, only the broken one needs to be changed.

X. Frequently Asked Questions

1 . Q: Why is it necessary to do a periodic check on the pressure of a tire with TPMS?

A: As you drive, tires can be damaged or become unbalanced over time. Checking your tire on a regular basis will ensure that it is functioning properly and safely.

2 . Q: After installation, when change the batteries or reset the Monitor, will real-time pressure and temperature information show on display?

A: No. After power off the monitor and turn on again, screen will display the latest information received by monitor before it's turned off.

3 . Q: Sometimes the LCD screen is not very clear.

A: This usually happens when the temperature inside the car is too low. When the temperature becomes higher, the LCD screen will display normally.

4 . Q: Blurriness appears on the LCD screen, or even the LCD screen is blank. Sometimes the audible alarm also can be heard.

A: This is usually due to low battery power. Please change the batteries or connect the Monitor to vehicle power through the provided Lighter Plug immediately.

5. Q: Why does the pressure inside the tire rises after running a period?

A: This is because of the friction between the tires and the ground. Heat from the friction of a moving tire will cause air inside the tire to inflate. Then pressure inside the tire will rise, usually approximately 2 to 4psi.

6. Q: Why is the Monitor not turning on?

A: If the Monitor is being powered by batteries, please check whether the batteries are installed in correct polarity and if batteries have enough power. If the Monitor is powered by vehicle power through the Lighter Plug, please check if connection is proper. If this does not solve your problem, please contact your dealer.

XI. Warranty Terms

Valid Warranty Card

1. The Warranty Card must be filled completely, signed by the user and the authorized distributors of IMPAQED PRODUCTS TPMS.
2. The Warranty Card is valid in the countries or regions where the purchase occurs.
3. The Warranty Service requires user to offer the Warranty Card.

Warranty Condition, Responsibility and Limitation

1. The product warranty period is one year and is subject to the time marked on the invoice.
2. Any damage or faults due to improper use are not involved in the warranty commitment.
3. Users are not allowed to open, repair and refit the products by themselves, otherwise the warranty service will be invalid.
4. The warranty does not include replacement of the enclosure and display panel.
5. The warranty does not cover product damage due to abrasion and corrosion.

XII. Important Notes

1. The Warranty Card must be filled completely and its number shall be quoted whenever the user requires the service.
2. Please inform Impaqed Products BV in the case that the telephone number or address on the Warrant Card are changed.
3. The warranty responsibility is subject to the conditions and limitations specified in the *User Manual.*